ARDOT TRC TRANSPORTATION RESEARCH COMMITTEE

PROBLEM STATEMENT
No. 22

RESEARCH PROBLEM STATEMENT

DATE: 09/25/2020 | **PROJECT AREA:** Pavements

TITLE: Are Arkansas highways deteriorating as predicted by PavementME?

PROBLEM STATEMENT:

ARDOT is currently tracking thirty highways that have been constructed in the past twelve years, termed Next 25. The tracking consisted of extensive notes on production, construction, pavement performance over the twelve year period, along with approximately 300 cores collected just after construction. These cores are currently sitting in the ARDOT materials laboratory. By looking into the past, these samples, along with access to the production and construction data, could provide a glimpse into future pavement performance. By running PavementME tests on these cores (unit weight, effective asphalt binder content, air voids, dynamic modulus, creep compliance, and IDT strength), the anticiapted performance of the road could be predicted. However, since these roads are upwards to twelve years old, the actual performance is already known. Therefore, this study woudl validate PavementME's prediction, by performing tests on new-build samples to see if future pavement performance mirrors predicted pavement performance by PavementME.

OBJECTIVES:

The objective of the research is to validate the ability of PavementME to predict long-term pavement performance. This will be accomplished through the following objectives: 1) running PavementME tests on existing cores up to 12 years old, 2) "predicting" the distresses that will form on the road from PavementME, 3) performing/analyzing surveys on the highways to capture actual performance, and 4) comparing the predicted performance to the actual performance.

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

A final report will include a summary of the performance tests required for PavementME, the predicted pavement performance output by PavementME, and a comparison of the predicted performance versus the actual performance. In addition, a review of potential pavement maintenance and pavement rehabilitation techniques will demonstrate potential pavement preservation techniques that will extend the life of the pavement at a reduced cost from the traditional preservation techniques used by ARDOT These two components of the final report will provide a foundation for ARDOT to track long term pavement performance, while reducing the overall cost of maintaining the pavement network.

Estimated Project Duration: 24 **Months**

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Standing Subcommittee Ranking	Advisory Council Ranking	Statement Combined with Statement Number(s)
2/4	13	